

# COASTAL FRUITGROWERS' NEWSLETTER

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Coastal Fruitgrowers' Newsletter  
Edited by Sandra Hardy  
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## No. 62 Spring 2006

Dear Growers

Welcome to the Spring edition.

Inside there's the annual update of chemicals registered for use in citrus crops in NSW.

There's also an interesting article on using netting to protect citrus from wind blemish, see page 3.

Also inside is an article on how to keep your spray equipment clean.

For stonefruit growers there's an update on the brown rot project by Shane Hetherington.

Happy reading

**Sandra Hardy**

### Sydney Orchardists Update Seminar

Date: **Thursday 19th October, 2006**  
Time: 12 noon to 5pm (Free BBQ lunch)  
Venue: Poolside Conference Centre University of Western Sydney (Hawkesbury Campus) Richmond

**For further details** see page 31

*The information contained in this publication is based on knowledge and understanding at the time of writing. However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of NSW Department of Primary Industries or the user's independent adviser. Inclusion of an advertisement or sponsor's symbol in this publication does not necessarily imply endorsement of the product or sponsor by NSW Department of Primary Industries*

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# Artificial wind break structures improve citrus fruit quality

**Andrew Creek, District Horticulturist, NSW DPI  
Griffith**

In May 2006 Riverina growers had a CITTgroup study tour to Mildura. Topics covered by the tour included fertigation, orchard netting, mechanical harvesting, biological fertilisers, corporate farming and new varieties. Since the tour, orchard netting and mechanical harvesting have both been the topics of much discussion amongst Riverina growers. This is no surprise, as harvest labour is the greatest cost of production and also many packhouses regard wind blemish as the greatest cause of fruit downgrading.



*Fully enclosed net and trials of different coloured net at Belvedere Farms, Merbein.*

Recently I tagged along with a smaller group to Mildura to see three different properties that had citrus growing under netting. The fully enclosed net structures were predominantly white in colour. The main reason these growers invested in netting was to reduce wind blemish, even though the net also provides hail protection. The growers visited claimed around a 35% increase in class 1 pack out for their citrus grown under the enclosed net structures. The mature orchards visited had a 90% class 1 pack out from the blocks under net, with minimal losses from wind blemish. Generally orchard blocks with a good natural tree wind break will have 15 to 20% of fruit with wind blemish,



*Wind blemish is a leading cause of fruit downgrading.*

whilst orchards with no wind protection commonly have up to 60% of fruit with major blemishes.

Most wind damage occurs within 12 weeks after petal fall when the fruit rinds are not hardened and are easily damaged. Wind blemish is caused by the movement of leaves, twigs and dead wood on the immature fruit.

Windbreaks are designed to reduce wind velocity and they can be either artificial or natural. Natural windbreaks of Casuarina trees are common. Some of the many benefits of wind breaks include reduced wind blemish on the fruit, improved establishment of young trees and a reduction in spray drift. There is a comprehensive windbreak fact sheet on the ACG website <http://www.australiancitrusgrowers.com.au>

Natural tree windbreaks are the cheapest to establish, however the following disadvantages need to be considered. Natural tree windbreaks require water and compete with adjacent tree rows for nutrients and moisture. They can cause shading and generally require some form of maintenance such as trimming or hedging. Natural windbreaks can take a number of years to grow and be fully effective.

Young trees clearly established quicker under the protection of netting. Photos 1 & 2 show Riverina

grower Bart Brighenti standing next to three year old Ryan Navel trees grown under net and outside the net.



Photo 1: Trees under net.



Photo 2: Trees outside the net.

enerally grower opinion was that frost protection provided by the structures was negligible. The major downfall of fully enclosed netting is the cost. The materials (net, wire and posts) and also the associated construction costs (labour) are expensive. A fully enclosed netting structure can cost between \$32 000 to \$50 000 per hectare. The final cost depends upon netting selection and structural design. The netting also has a limited life time. Most manufacturers guarantee their net product for ten years but the expected life of the net can be 15 to 20 years. The cost of replacing the net is about half the cost of the original installation.

It is important to match net weave size with post quadrants. Select a combination that suits your

expectations of the structure and an orchard's individual situation. Correct quadrant selection adds structural strength and keeps the netting tight. Larger weaves and quadrant sizes may save money on a structure's initial cost however structural strength, net longevity and wind reduction are all compromised. Orchard net is available in 8mm, 12mm, 16mm, and 21mm weaves.

Photos 3 and 4 are examples of net weaves used for wind and hail protection in orchards. Smaller net weaves are used on the sides of a structure whilst the larger weaves are used on top.



Photo 3:  
8mm NetPro netting



Photo 4:  
16mm NetPro netting

The net structures were large in area and generally 5m tall. By choice, growers managed tree height under the netting with annual pruning. Pruning develops a good tree structure, makes picking easy and keeps the trees producing larger sized fruit. The windbreak nettings the CITTgroup tour saw were mainly coloured white however certain net products are available in grey, black or red. There is a trial of red, grey and white coloured netting at Belvedere Farms Merbein property. The coloured netting trial is privately funded by Belvedere Fruit Growers. Manufacturers claim that the:

Grey – delays fruit colour.

Red – improves fruit colour and colour development is earlier.

White – fruit colour is the same as fruit outside the net.

Thanks go to Riverina Citrus for organising the study tour and also the owners of the properties we visited. The property owners with artificial windbreak structures had no doubt that the netting was a good investment and that it reduced wind blemish to fruit. Young trees certainly established a lot quicker under netting and export class fruit packouts were greatly increased. 🌳

# Keeping spray equipment clean

**Keith Fallow, NIPRO**

Many growers are now coating their spray equipment with a protectant prior to spraying coppers and other hard to clean off products that are inclined to stick to their machines.

Here are some of the options growers are using to keep their equipment clean.

## 1. Coat sprayer and tractor with a protectant

- i) Use a 5 L pump up sprayer or the like to coat the sprayer with a range of products such as:
  - a. Lanolin based protectant. This will often last 2 or 3 months. (see separate information).
  - b. Winter or summer oil: some growers apply it neat other use it diluted up to 1:5 oil: water mixture.
  - c. Diesel, or a 50:50 diesel/used hydraulic oil mixture, (can be hard on rubbers).
  - d. CRC, ACL, Inox or DW 40 type lubricants or similar to completely coat their machines.
  - e. Neat wetter ( BS1000 or Agral or similar) or neat detergent (truck wash etc) and let it dry on the equipment prior to spraying
- ii) Clean the sprayer with a high pressure sprayer and a good quality truck cleaner or degreaser very 1-2 days for options b-e above in step i).

These deposits seem to come off easier if washed off immediately after the spraying is completed and while the sprayer still remains damp. Once the deposits have "baked" on they are harder to remove. The key to success of this technique is to re-apply any of the lanolin or oil based coatings immediately after cleaning. This allows the oils etc to penetrate and seal the sprayer with a film of oil.

## 2) Apply car wax to the equipment

Other growers have found that coating their tractors and equipment with an automobile wax at the beginning, and again 1-2 times throughout the season, is sometimes effective.

Spray deposits clean off shiny surfaces much more easily than when the surface is pitted or rough.

Often the "wash and wax" type products are easier to use. Apply with either a sponge and a bucket or a pressure washer. It is often beneficial to apply a second coat after the first has dried.

## 3) For cleaning existing deposits try

- i) Covering sprayer with diesel overnight then use a good truck wash and a hot wash pressure washer.
- ii) Some growers have been using a product called Corro Dip (sold as a rust remover/ rust neutraliser). This is a blend of partially neutralised organic acids with a pH of 3. It works by dissolving the deposits of copper salts and fungicides stuck to the inside and outside of the tanks. Use neat for heavy deposits or up to a 1:5 dilution with water for regular cleaning. Spray onto a small area, leave a couple of minutes and scrub off with either a brush or high pressure washer. This product is manufactured by Liquid Engineering ( [www.liquideng.com.au](http://www.liquideng.com.au) ) ph 1800 804 007.

## Using lanolin based protectants

Lanolin is a natural product that has been used for centuries as a protectant and lubricant. Lanolin based products are currently used in a wide variety of applications from aviation, marine, transport, engineering, mining, automotive, food production, agriculture and almost any industry that requires a proven lubricant, anti-corrosion coating, penetrant, anti-seize, timber preservative or releasing agent.

## Products to use

Currently there are three types of lanolin product available, a grease and two grades of liquid lanolin. Use the heavy duty sprayable product rather than the lighter general purpose product.

## How to apply

These products should be applied neat. Apply the liquid lanolin product using a hand held atomiser or small pump up sprayer to completely coat all surfaces of the sprayer with a thick coat of lanolin. Preferably apply outside and on a warm day. Allow

several hours for the lanolin to penetrate into and around all surfaces. One spray can give up to two months protection if the washing techniques below are followed correctly.

### Cleaning up the sprayer

The key to using Lanolin based products is to only remove the surface covering of spray deposits and dust without disturbing the lanolin film underneath

### Daily

Rinse off the worst of any dust and loose spray coating with water from a hose at the end of each day. Take care to avoid removing the underlying sticky lanolin film. DO NOT use a pressure washer as this is likely to remove some or all of the lanolin film.

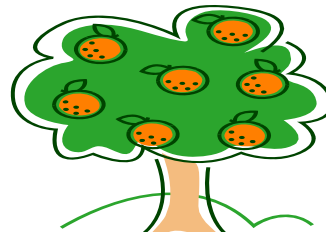
Re-apply more lanolin to any high risk areas with a few squirts from a hand held atomiser (eg where hosing off may have removed some of the underlying coating). It also pays to touch up

susceptible spots such as hydraulic couplings and mild steel brackets and nuts etc.

### 3-4 times per season

Use a hot wash pressure washer and detergent to completely clean the sprayer. The lanolin dissolves in hot water and or with detergent. Spray deposits come off with the lanolin. Re-coat sprayer with lanolin and repeat as above.

Using a Lanolin based product improves ease of cleaning as well as providing good anti corrosive protection to sprayers and other agricultural machinery.



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# Is Tilt still effective against brown rot in stone fruit

**Shane Hetherington, Research Horticulturist, NSW DPI, Orange.**

*Over the last few seasons some orchardists in the Sydney Basin have been spraying Tilt and still losing a lot of their crop to brown rot. Is resistance the problem?*

Applying Tilt (active ingredient propiconazole) is an effective way of controlling brown rot in stone fruit. A survey of Australian stone fruit pesticide use during 2003/04 showed that Tilt was the most widely used fungicide. But are orchardists creating problems by over-using Tilt?

Tilt controls brown rot by stopping a very specific metabolic pathway within the fungus causing brown rot, *Monilinia*. If even a small percentage of the millions of spores the fungus uses to cause an infection aren't killed by Tilt, the fungicide isn't fully effective. Repeated use of Tilt kills vulnerable spores and gradually biases the population of fungi toward resistant types. This type of resistance doesn't occur quickly. Instead the fungicide gradually loses its ability to control the disease over a number of seasons. This can happen so slowly that orchardists don't even notice it. Some

orchardists respond by increasing rates. This leaves the most resistant fungi to survive and exacerbates the problem.

## The project

We need to look at a lot of brown rot samples to determine if resistance is a problem. Because samples vary naturally in their tolerance of Tilt, a small sample might only contain fungi with low tolerance to the fungicide. We need enough samples to make sure that we're looking at a representative cross-section of all of the fungi in the orchards.

During the 2004/05 season we collected 70 samples from 8 orchards in the Sydney Basin. These samples were sent to the Orange Agricultural Institute to test their tolerance of propiconazole (the active ingredient in Tilt). We have to use the active ingredient to rule out variation between fungicide batches because of adjuvants. At Orange, the samples were grown on agar media amended with a range of fungicide concentrations. We then measured the fungi's growth to see how tolerant the samples were to propiconazole. A fungus which is more tolerant of propiconazole grows more quickly than a less tolerant one. The tolerance of the first 47 samples collected has now been analysed.

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### What do the results tell us?

- The resistance testing procedure is working well. The brown rot fungi collected have a range of tolerances to propiconazole – a few are less or more tolerant but most fall somewhere in the middle. This is what was expected.
- No single orchardist is any worse off than his neighbours. A range of propiconazole tolerances have been collected on all orchards.

### Where to from here?

Because no orchards stand out as having more propiconazole-tolerant samples we're left with two possibilities. Either resistance is not a problem in the orchards in which we've sampled or all of the orchards we've sampled have a problem. We need something to compare the Sydney Basin samples to.

Tilt was first introduced to NSW orchardists during the 1985-86 season. At this time a large number of brown rot samples were collected in the Murrumbidgee Irrigation Area and stored. These samples are unlikely to have ever been sprayed with

Tilt and have therefore not had a chance to develop resistance. We've managed to get access to these samples, so during the 2006/07 season we will:

- Revive the MIA samples and test them for their tolerance of propiconazole.
- Collect and test more samples (100 for 2006/07) from the Sydney Basin
- Collect and test samples from the MIA.

By the end of Winter 2007 we will have compared the tolerances of populations of samples from the Sydney Basin and the MIA (new samples and old ones). With this information we will be able to determine if Tilt is as effective as it was 20 years ago and if its effectiveness varies between regions.

*We would like to thank the orchardists who have allowed us to take samples from their orchards. I would also like to thank those who have helped with sampling and processing of the samples; Sandra Hardy, Vivian Ku and Elena Lazar from Gosford Horticultural Institute.*



## Citrus Drip Irrigation book

NSW Department of Primary Industries and the Murray Valley Citrus Board have released a new book detailing best practice drip irrigation for citrus growers.

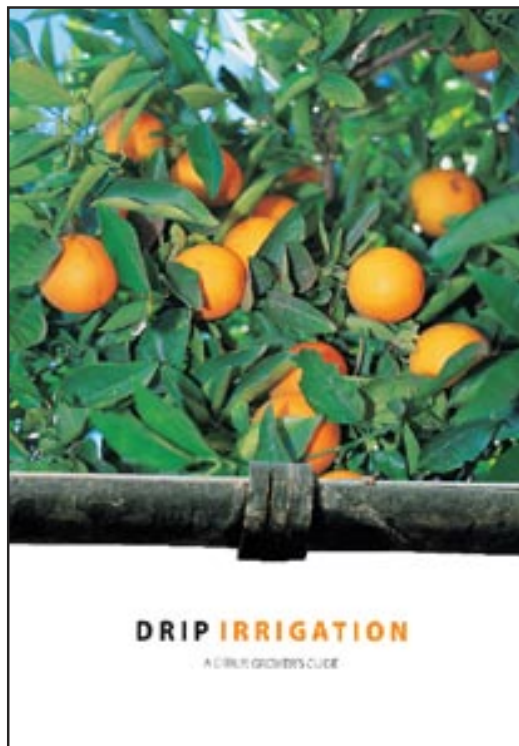
"Drip irrigation - a citrus grower's guide" combines the expertise of advisors, researchers, designers and farmers from the citrus industry.

NSW DPI Dareton Irrigation Officer and primary author Jeremy Giddings says the book responds to strong interest in drip irrigation among citrus growers.

It covers topics including: water quality, designing drip systems, irrigation scheduling, fertigation, system monitoring and maintenance, soil management, and the economics of drip.

Case studies in the book range from citrus drip pioneers to recent adopters.

Drip Irrigation - a citrus grower's guide is available from the NSW DPI bookstore on toll-free 1800 028 374. Cost is \$22 plus \$6 p&h.



# Development of new management systems for low chill stonefruit in Australia and Asia

**A.P. George, R.J Nissen and D. Bruun, DPI,  
Maroochy Research Centre.**

*Extracted from Low Chill Stonefruit Grower, No. 2/06 April  
2006.*

New management systems and techniques have been developed for growing low chill stonefruit under sub-tropical environments, including training the latest low-chill varieties onto the open Tatura trellis system planted at densities of about 1700 trees per hectare. We estimate that yields at full maturity, 3-4 years after planting, to be between 28-35 tonnes per hectare.

## Start the fight against fruit tree disease **NOW!**

**Most of the common diseases of fruit trees are carried over from year to year in the soil, on prunings and on the tree itself.**

Soilsmart has a range of products that can help you to start cleaning up and protecting potential infection sites, enabling you to start the fight against disease early.

The introduction and management of beneficial organisms, post harvest, as a preventative measure against disease will dramatically reduce, and in most cases eliminate disease problems before they re-occur in the next crop.

When properly managed, the beneficial biomass introduced to the soil and plant, will also provide ongoing protection and competition against disease and insects.

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Due to the improved ease of management of this system, labour costs associated with pruning, thinning and harvesting have been reduced by at least 30% compared with conventional palmette trained trees. With our new training system, subleaders are espaliered in contrast to the normal oblique training. Both fruiting and non-fruiting laterals are pre-harvest pruned, prior to or during stone-hardening, by shortening laterals by 30-50%.

The severity of this summer pruning is greatly reduced by applying the growth retardant paclobutrazol either as a collar drench, or more preferably, under the irrigation drippers. Paclobutrazol can increase fruit size by up to 30%. Labour costs associated with harvesting can be reduced by concentrating the flowering and fruit maturity period using a sequence of treatments including application of paclobutrazol in summer, autumn defoliation and use of rest-breaking chemicals such as Armobreak.

The ethylene inhibitor ReTain®, was highly effective in increasing fruit firmness and size by about 10-15%, but responses were variety dependant and timing of application was critical. This growth regulator may play an important role in 'firming up' very soft varieties such as White Satin nectarine or in extending the cool storage life of varieties suitable for sea-freighting. The combined application of gypsum, humic acid and mulch has also been shown to improve fruit firmness. The correct sequence and combination of all of the management and training techniques described above is needed to gain the greatest improvements in yield and fruit quality.

For more information contact: Dr Alan George and Bob Nissen at Qld DPI , [Alan.George@dpi.qld.gov.au](mailto:Alan.George@dpi.qld.gov.au) or [Bob.Nissen@dpi.qld.gov.au](mailto:Bob.Nissen@dpi.qld.gov.au)

